Blood-Stream Infection (CDC)

From: Nancy Moureau [nancy@piccexcellence.com]
Sent: Thursday, December 03, 2009 8:26 PM
To: Blood-Stream Infection (CDC)
Subject: Recommendations for Draft Guidelines for Prevention of Intravascular Catheter Related Infections
Attachments: CDC Draft Comments N Moureau Access Port Antisepsis.doc

CR-BSI (CDC)

From: Nancy Moureau (nancy@piccexcellence.com)
Sent: Thursday, December 3, 2009
To: Centers for Disease Control
Subject: Recommendations for Draft Guidelines for Prevention of Intravascular Catheter Related Infections

12/03/2009

To HICPAC Committee Members:

My name is Nancy Moureau. I am a Vascular Access Specialist and IV Team member at Greenville Memorial Hospital in Greenville, SC, as well as an educator with PICC Excellence, Inc. I thank you for the opportunity to respond to the Recommendations for Prevention of Intravascular Catheter Related Infections.

Comments regarding the draft:

Too little is known about the effects of Chlorhexidine on non-organic material for the guidelines to state a preference for its use in cleaning access ports.
The draft states: “Minimize contamination risk by wiping the access port with an appropriate antiseptic (chlorhexidine preferred) and accessing the port only with sterile devices [330, 333, 335]. Category IA”.

RECOMMENDATION: I strongly encourage the HICPAC Committee Members to see that the most prevailing issue for access port antisepsis is not to state a preference for a chlorhexidine solution -- but rather, to reinforce appropriate application with respect to product and solution used. I would propose a statement like this:
“**Minimize contamination risk by disinfecting the access port with an approved antiseptic and frictional method. The technique of application for an antiseptic wipe (active) should constitute vigorous scrubbing of access port septum and threads over a period of 15 seconds consistent with the Kaler study. Consideration should be given to more studies of a disinfecting cap (passive) technique that could constitute application of cap to the access port and allow dwelling in place per the manufacturer’s instructions for use.** “

I propose this adjustment to more accurately reflect the most substantial evidence and issue regarding access port disinfection: **clinician practice**. Even more important than the type of antiseptic is the time and friction of the application in disinfecting the access port. There is no doubt that access port disinfection is a clinical imperative and must be done with an “appropriate antiseptic.” However, to focus on the preference of chlorhexidine as a category IA guideline is premature given the available evidence.

My reasoning is as follows:

1. Along with countless colleagues from around the country, I concur that access port disinfection practice is inconsistent and the main source of contamination. A cursory wipe of an access port with 70% isopropyl alcohol (IPA) is the actual standard practice being applied, if done at all. With such little evidence and inconsistent research methods comparing disinfectant solutions (i.e. IPA vs. Chlorhexidine + IPA), there is no reason to conclude that one solution is clearly more effective than another.

2. Most of the existing studies compare different techniques and use varied methodologies. One study will measure CRBSI rates while using different solutions over a period of 4 months. Another will culture the external surfaces of a catheter and yet another will sample and incubate fluid passed through a needleless access connector. A particular concern with some of the studies being referenced is that they are not consistent with the pathogenic implications for access port manipulation related to catheter blood stream infections.

3. If the prevailing pathogenic theory is that CRBSIs from catheter hub and access port manipulation are promulgated via the intraluminal migration of microbes, then study designs that can accurately and directly test the pass through of microbes through a connector or port should be given higher credence than less refined and more patient- variable-driven ones.

Two studies of interest would be Kaler and Chinn (2007) and Menyhay and Maki (2006). These two studies demonstrated access port antisepsis by measuring the pass through of microbial contamination with a flush solution. The solution was collected after it passed though the access port. Subsequent incubation and testing for residual microbial growth provided for some compelling and interesting conclusions, as you are likely aware.

4. The Menyhay and Maki study compared IPA wipe with a CHG+IPA barrier cap. Though the comparison of solutions was poorly done in that the application and contact times were different, two very good points were made: 1.) A 3-5 second scrub with an IPA wipe on a needless connector was not effective in sufficiently reducing microbial pass through. 2.) Contact time with a CHG+ IPA solution of 10 minutes was effective. From this study we can determine that there are two methods used for access port antisepsis: one being an **active** application with a wipe using friction and the other a **passive** application with a cap, essentially soaking the access port/connector over several minutes.

5. The Menyhay and Maki study served as a stepping-stone for the Kaler and Chinn Study. The progression of the study took a logical extension in that a more direct comparison of disinfectant effectiveness was achieved. Wipe applicators were used containing one of two antiseptic solutions, IPA or CHG + IPA. The wipes were used to provide a scrubbing action with friction to a needleless connector for a period of 15 seconds. This study showed that 15 seconds of scrubbing was adequate with either antiseptic solution in sufficiently reducing microbial pass through of contaminated needleless connectors.

Two significant points are made with the Kaler and Chinn study: 1.) The method of application is far more important than a particular antiseptic. 2.) The method applied for **active** disinfection should constitute friction and a minimum of 15 seconds of time.

6. Neither study provided mind-boggling concepts rather they support the time-tested concepts of antisepsis: appropriate solution applied with friction over a specified amount of time. We apply this concept to skin antisepsis and recommend clear time intervals. I ask that we apply the same principle to access port antisepsis with a practical emphasis on how to disinfect.

7. In regards to direct comparison of IPA vs. CHG+IPA, some interesting notes were developed by the Kaler and Chinn study. The CHG containing wipes (CHG 3.15%) left a residue on the cap that was sticky in nature. The sticky component left on the plastic access port may cause it to be more prone to contamination through dirt, bacteria and other contaminants sticking to the area. Continued use of this solution may lead to concerns of affecting needless connector function.

8. Certainly, IPA, CHG+IPA and 10% povidone-iodine can all be effective for antisepsis and for skin antisepsis we know that a 2% CHG solution is preferable. However, too little is known about the effects of Chlorhexidine on non-organic material and much speculation exists over it being more effective than IPA alone for fast and effective access port disinfection.

SUMMARY: Too little is known about the effects of Chlorhexidine on non-organic material for the guidelines to state a preference for its use in cleaning access ports. The Guidelines should direct clinicians to "Minimize contamination risk by disinfecting the access port with an approved antiseptic and frictional method." They should describe the active method of using an antiseptic wipe and recommend consideration of more study of the passive method of using a disinfection cap.

Thank you for your time and consideration in this matter of great importance to clinicians and the patients. I welcome any questions or communication that could help to clarify these issues.

Respectfully Submitted,

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